pressure side of the blower 5 issues into the ambient. A waste receptacle of appropriate size is placed underneath the suction device.

A sample container cap screwed or pulled off in the vicinity of the tube 20 is thereupon released by the aperture device and aspirated by the airflow into the tube 20. From there said cap passes through the tangentially connected suction duct 1 into the collecting container 2 where, because of the increasing cross-section, the aspirated air slows, the cap/stopper dropping in the direction of gravity onto the flat side 7 of the closing device 4. For the time being, the cap will stay there. In the case of consecutive opening of sample containers, the next arriving cap will also drop on the flat side 7. Any aerosols aspirated together with the air and released from the sample or adhering to the sealing cap/stopper are guided into the filtration cartridge 3 and are efficiously retained therein. With respect to medical samples, preferably a filter retaining at least 95 % at a particle size of 0.2 µm shall be selected. Thereupon the exhaust air can be expelled into the lab without entailing reservations.

After a number of opening procedures, the screwed or pulled off caps will almost entirely fill the collecting container 2. The control of the automated sample handling apparatus then switches OFF the blower 5 for a given time interval and as a result the partial vacuum in the collecting container 2 will become less. The weight of the stoppers acting on the flat side 7 of the closing device 4 causes latter to pivot into the open position shown in Fig. 1, the flat side 7 and the guide elements 9 constituting a chute for the sealing caps from which they drop into the waste receptacle. After the collecting container 2 has been emptied, the counterweight 13 restores the closing device 4 to its closed position which shall be reinforced by switching ON the blower 5, that is by the resultant partial vacuum. Thereupon the system is ready to process further caps.

The power interruption to the blower 5 for the purpose of emptying the collecting container 2 may be comparatively short, for instance 5 to 10 s. Such a time interval is admissible in the course of typical sample handling of blood or the like and it will not interrupt regular analysis because the sample tubes or vials drop into pallets and following a given number of opened test vials, the pallet will have to be changed. The size of the collecting container 2 may be matched to the size and number of sealing stoppers accumulating at one pallet and as a result the caps of a full pallet will fit into the collecting container 2. Interrupting the power to the blower then may be scheduled into the interval anyway required for pallet changing.

This procedure offers the advantage that the waste receptacle underneath the suction system can be emptied any time without thereby shutting down the whole equipment -- whereas conventional suction systems entail such a shutdown when the waste receptacles must be emptied or changed. Unlike the case of the state of the art, the waste receptacles of the invention need not be resistant to partial vacuum because not being subjected to it. Accordingly pouches and other bags may be used that subsequently only require being easily and reliably closed.

Again it is highly advantageous in practice that the collecting container 2 may be emptied in automated, controlled manner, in that applicable centrifugal blowers 5 may be operated at comparatively lower powers and hence will generate relatively little noise, and in that relatively reliable filtering for instance of pathogenic germs is feasible. Opening and closing the closing device can be implemented merely by controlling the operational voltage of the blower 5, and as a result, the control means of the entire automated sample handling apparatus need only provide this function.

An appropriate blower for instance is RG160-28/14N made by Papst GmbH, St. Georgen, DE.

CLAIMS

1. An aspirating system for caps of sample containers, comprising a suction duct (1), a partial-vacuum space constituting a collecting container (2), further a blower (5) generating a partial vacuum in the collecting container (2) during its operation,

characterized in that

the collecting container comprises a closing device (4) at its lower side.

2. System as claimed in claim 1, characterized in that the closing device (4) is a flap.

3. System as claimed in one of the above claims, characterized in that the closing device (4) constitutes at least one segment (7) of a base wall of the collecting container (2).

4. System as claimed in one of the above claims, characterized in that the closing device (4) is fitted with a substantially horizontal pivot shaft (11) and in that a counter-weight (13) is mounted opposite the base wall (7) , in that the closing device (4) in the event of a collecting container (2) being empty will be closed or nearly so even in the absence of a partial vacuum.

5. System as claimed in one of the above claims, characterized in that the closing device (4) during operation is loaded with caps of sample containers and is kept closed by the partial vacuum, and in that in the event of absence of partial vacuum the closing device (4) shall pivot by means of the weight of one or more caps into an open position.